NuScaleDCRaisPEm Resource

From: Cranston, Gregory
Sent: Friday, June 09, 2017 10:08 AM
To: RAI@nuscalepower.com
Cc: NuScaleDCRaisPEm Resource; Lee, Samuel; Chowdhury, Prosanta; Jackson, Diane; Tabatabai, Omid; Travis, Boyce
Subject: Request for Additional Information No. 56, RAI 8793
Attachments: Request for Additional Information No. 56 (eRAI No. 8793).pdf

Attached please find NRC staff's request for additional information concerning review of the NuScale Design Certification Application.

Please submit your response within 60 days of the date of this RAI to the NRC Document Control Desk.

If you have any questions, please contact me.

Thank you.

Gregory Cranston, Senior Project Manager
Licensing Branch 1 (NuScale)
Division of New Reactor Licensing
Office of New Reactors
U.S. Nuclear Regulatory Commission
301-415-0546

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Created By: Gregory.Cranston@nrc.gov

Recipients:
"NuScaleDCRaisPEm Resource" <NuScaleDCRaisPEm.Resource@nrc.gov>
Tracking Status: None
"Lee, Samuel" <Samuel.Lee@nrc.gov>
Tracking Status: None
"Chowdhury, Prosanta" <Prosanta.Chowdhury@nrc.gov>
Tracking Status: None
"Jackson, Diane" <Diane.Jackson@nrc.gov>
Tracking Status: None
"Tabatabai, Omid" <Omid.Tabatabai-Yazdi@nrc.gov>
Tracking Status: None
"Travis, Boyce" <Boyce.Travis@nrc.gov>
Tracking Status: None
"RAI@nuscalepower.com" <RAI@nuscalepower.com>
Tracking Status: None

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Request for Additional Information No. 56 (eRAI No.8793)

Issue Date: 06/08/2017
Application Title: NuScale Standard Design Certification - 52-048 Operating
Company: NuScale Power, LLC
Docket No. 52-048
Review Section: 06.02.01 - Containment Functional Design Application Section: 6.2.1, 6.2.2, 6.3

QUESTIONS

06.02.01-1

GDC 50, “Containment design basis,” requires in part that the containment be designed so that the containment structure and its internal compartments can accommodate, without exceeding the design leakage rate and with sufficient margin, the calculated pressure and temperature conditions resulting from any loss-of-coolant accident. This margin shall reflect, among other considerations, the conservatism of the calculational model and input parameters.

TR-0516-49084-P, “Containment Response Analysis Methodology Technical Report,” which is referenced in FSAR Chapter 6 and forms the basis for the containment design pressure and temperature, states that containment initial temperature (140 F); this is reflected in the technical specification limiting condition for operation for the ultimate heat sink. This value, however, as stated in FSAR Section 9.2.5.6.1, is based on a temperature sensor at the inlet of the cooling water heat exchangers for the pool, and assumes adequate mixing of the pool. Provide a justification for why the assumed limiting temperature is conservative (i.e., demonstrate pool mixing occurs), or justify why local bay temperatures will not exceed the assumed bulk pool temperature and therefore will not impact the containment heat removal analyses.

06.02.01-2

GDC 50, “Containment design basis,” requires in part that the containment be designed so that the containment structure and its internal compartments can accommodate, without exceeding the design leakage rate and with sufficient margin, the calculated pressure and temperature conditions resulting from any loss-of-coolant accident. This margin shall reflect, among other considerations, the conservatism of the calculational model and input parameters.

TR-0516-49084-P, “Containment Response Analysis Methodology Technical Report,” which is referenced in FSAR Chapter 6 and forms the basis for the containment design pressure and temperature, states that containment initial pressure is “bounding high” at 2.0 psia; this is also reflected in the value in FSAR Table 15.0-6, which lists the initial condition range for safety analyses. A further spec says this is varied as an initial condition [(+~2 psia)]. However, there is no basis for these values as either an analytical limit or a technical specification limiting condition for operation. Justify the conservatism in the initial condition used, and provide a basis (such as a technical specification or that it represents a bounding value as a trip setpoint plus uncertainty) for why this value is a limiting value that could not be exceeded during operation as an initial condition, or provide a new value that represents a limiting initial condition. As part of this response, if any values are changed, provide a proposed update to the DC application and corresponding documentation as applicable.